

WHAT IS CLAIMED IS:

1. A wrench for tightening or loosening a fastening member with respect to another member, comprising:

a wrench body having a ring portion which has an inner diameter suitable for disengagable engagement with an outer circumference of the fastening member, and a handle portion projecting from an outer circumference of the ring portion;

a plurality of wedge members each assuming a roller-like shape;

a retainer disposed inside the ring portion in such a manner that the retainer rotates along an inner circumferential surface of the ring portion, the retainer rotatably holding the wedge members at predetermined intervals in a circumferential direction of the ring portion;

wedge guide grooves formed on the inner circumferential surface of the ring portion to be arranged along the circumferential direction of the ring portion at intervals corresponding to those of the wedge members, each of the wedge guide grooves having a free region which extends in the circumferential direction of the ring portion and maintains the corresponding wedge member in a free state in which the wedge member moves freely between a bottom surface of the corresponding wedge guide groove and the outer circumferential surface of the fastening member, and a wedge region which extends in the circumferential direction of the ring portion and maintains the corresponding wedge member in a caught state in which the wedge member is caught between

the bottom surface of the corresponding wedge guide groove and the outer circumferential surface of the fastening member; and

a changeover mechanism for operating the retainer in order to move each wedge member to a position at which the wedge member faces the free region of the corresponding wedge guide groove or a position at which the wedge member faces the wedge region of the corresponding wedge guide groove.

2. A wrench according to claim 1, wherein the wedge region of each of the wedge guide grooves is provided on each of opposite sides of the free region with respect to the circumferential direction of the ring portion.

3. A wrench according to claim 1, wherein the changeover mechanism includes a changeover lever for operating the retainer.

4. A wrench according to claim 1, wherein the changeover mechanism includes a changeover lever mounted on the handle portion at a position near the ring portion in such a manner that the lever can pivot horizontally; a first end portion of the changeover lever passes through the ring portion and is coupled to the retainer; a positioning mechanism is provided at a second end portion of the changeover lever in order to hold the changeover lever at a position at which the retainer is moved to a circumferential

position at which each wedge member faces the corresponding free region, or a position at which the retainer is moved to a circumferential position at which each wedge member faces the corresponding wedge region.

5. A wrench according to claim 4, wherein the positioning mechanism is composed of a click stop mechanism which includes a steel ball accommodated in the second end portion of the changeover lever; a spring member for urging the steel ball toward the handle portion; and first and second engagement holes which are formed on the surface of the handle portion and with which the steel ball selectively engages, wherein when the steel ball engages the first engagement hole, the retainer is positioned at the circumferential position at which each wedge member faces the corresponding free region, and when the steel ball engages the second engagement hole, the retainer is positioned at the circumferential position at which each wedge member faces the corresponding wedge region.

6. A wrench for tightening or loosening a fastening member having a cylindrical hole with respect to another member, comprising:

a wrench body having a cylindrical body to be inserted into the cylindrical hole of the fastening member and a handle portion projecting from the cylindrical body;

a plurality of wedge members each assuming a roller-

like shape;

a retainer disposed outside the cylindrical body in such a manner that the retainer rotates around an outer circumferential surface of the cylindrical body, the retainer rotatably holding the wedge members at predetermined intervals in a circumferential direction of the cylindrical body;

wedge guide grooves formed on the outer circumferential surface of the cylindrical body to be arranged along the circumferential direction of the cylindrical body at intervals corresponding to those of the wedge members, each of the wedge guide grooves having a free region which extends in the circumferential direction of the cylindrical body and maintains the corresponding wedge member in a free state in which the wedge member moves freely between a bottom surface of the corresponding wedge guide groove and the inner circumferential surface of the cylindrical hole of the fastening member, and a wedge region which extends in the circumferential direction of the cylindrical body and maintains the corresponding wedge member in a caught state in which the wedge member is caught between the bottom surface of the corresponding wedge guide groove and the inner circumferential surface of the cylindrical hole of the fastening member; and

a changeover mechanism for operating the retainer in order to move each wedge member to a position at which the wedge member faces the free region of the corresponding wedge

guide groove or a position at which the wedge member faces the wedge region of the corresponding wedge guide groove.

7. A wrench according to claim 6, wherein the wedge region of each of the wedge guide grooves is provided on each of opposite sides of the free region with respect to the circumferential direction of the cylindrical body.

8. A wrench according to claim 6, wherein the changeover mechanism includes a changeover lever for operating the retainer.

9. A wrench according to claim 6, wherein the changeover mechanism includes a changeover lever mounted on the handle portion at a position near the cylindrical body in such a manner that the lever can pivot horizontally; a first end portion of the changeover lever is coupled to the retainer; a positioning mechanism is provided at a second end portion of the changeover lever in order to hold the changeover lever at a position at which the retainer is moved to a circumferential position at which each wedge member faces the corresponding free region or a position at which the retainer is moved to a circumferential position at which each wedge member faces the corresponding wedge region.

10. A wrench according to claim 9, wherein the positioning mechanism is composed of a click stop mechanism

which includes a steel ball accommodated in the second end portion of the changeover lever; a spring member for urging the steel ball toward the handle portion; and first and second engagement holes which are formed on the surface of the handle portion and with which the steel ball selectively engages, wherein when the steel ball engages the first engagement hole, the retainer is positioned at the circumferential position at which each wedge member faces the corresponding free region, and when the steel ball engages the second engagement hole, the retainer is positioned at the circumferential position at which each wedge member faces the corresponding wedge region.